

Application No. TBA

Prelim. Amd. dated Nov. 17, 2003

Title: AQUEOUS NANOPARTICLE CERAMIC AGGLOMERATE DISPERSION FOR FORMING INK-ABSORBING LAYER OF INK-JET RECORDING MEDIUM

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Kindly delete Claims 2, 4, and add new Claims 10-20.

1. (Currently Amended) An aqueous nanoparticle ceramic agglomerate dispersion, for forming an ink-absorbing layer of an ink-jet recording medium, comprising:

- a nanoparticle ceramic agglomerate dispersed in deionized water;
- said nanoparticle ceramic agglomerate having an average diameter of 0.05 to 0.3 μm ~~at a viscosity suitable for coating of 10 to 200 mPa·s~~ as measured by a laser diffraction particle size distribution measurement apparatus, at a viscosity suitable for coating of 10 to 200 mPa·s as measured at 22°C at 2.5 rpm using a E-type viscometer and
- said nanoparticle ceramic agglomerate having a size distribution curve such that the ratio of peak width at a height which is half the maximum height of said curve, determined according to the results of said measurement, to the maximum height is 0.7 or less;
- said dispersion having been prepared by ultra-high pressure counter jet streams of the dispersion colliding with each other.

2. (Cancelled)

Application No. TBA

Prelim. Amd. dated Nov. 17, 2003

Title: AQUEOUS NANOPARTICLE CERAMIC AGGLOMERATE DISPERSION FOR FORMING INK-ABSORBING LAYER OF INK-JET RECORDING MEDIUM

3. (Original) An ink-jet recording medium having an ink-absorbing layer deposited on a surface thereof produced from the aqueous nanoparticle ceramic agglomerate dispersion of claim 1.

4. (Cancelled)

5. (Original) The ink-jet recording medium according to claim 3 wherein said dispersion further contains a cationic polymer.

6. (Original) The ink-jet recording medium according to claim 3 wherein said surface is a water absorbing paper recording surface.

7. (Original) A method of making an ink jet recording medium comprising applying to a recording surface a coating of the aqueous nanoparticle ceramic agglomerate dispersion of claim 1, cooling the coating, and drying the coating to produce said recording medium.

8. (Original) The method according to claim 7 wherein said recording surface is a water absorbing papers.

9. (Original) The method according to claim 7 wherein said dispersion also contains a cationic polymer.

10. (New) The aqueous nanoparticle ceramic agglomerate dispersion according to claim 1, wherein the nanoparticle ceramic agglomerate is a member selected from the group consisting of SiO₂, Al₂O₃, and TiO₂.

Application No. TBA

Prelim. Amd. dated Nov. 17, 2003

Title: AQUEOUS NANOPARTICLE CERAMIC AGGLOMERATE DISPERSION FOR
FORMING INK-ABSORBING LAYER OF INK-JET RECORDING MEDIUM

11. (New) The aqueous nanoparticle ceramic agglomerate dispersion according to claim 1, wherein the aqueous nanoparticle ceramic agglomerate dispersion is made by subjecting nanoparticle ceramic agglomerates to treatment in a jet mill apparatus in which counter jet streams of the dispersion collide with each other at a jet stream radius of 0.1 mm at a collision position, at a jet stream velocity 600 m/sec and a flow rate of the jet stream at the nozzles of 15 liters per minute for a predetermined time to disintegrate the nanoparticle ceramic agglomerates.

12. (New) A nanoparticle ceramic agglomerate having an average diameter of 0.05 to 0.3 μm as measured by a laser diffraction particle size distribution measurement apparatus, and a size distribution curve such that the ratio of peak width at a height which is half the maximum height of said curve, determined according to the results of said measurement, to the maximum height is 0.7 or less.

13. (New) A method of making an ink-jet recording medium comprising depositing on said medium the aqueous dispersion of claim 1.

14. (New) An aqueous dispersion comprising a cationic polymer and nanoparticle ceramic agglomerates having an average diameter of 0.05 to 0.3 μm as measured by a laser diffraction particle size distribution measurement apparatus, and a size distribution curve such that the ratio of peak width at a height which is half the maximum height of said curve, determined according to the results of said measurement, to the maximum height is 0.7 or less.

Application No. TBA

Prelim. Amd. dated Nov. 17, 2003

Title: AQUEOUS NANOPARTICLE CERAMIC AGGLOMERATE DISPERSION FOR
FORMING INK-ABSORBING LAYER OF INK-JET RECORDING MEDIUM

15. (New) A method of making an aqueous dispersion comprising dispersing nanoparticle ceramic agglomerates in water to thereby form an aqueous dispersion and subjecting the resulting dispersion to a jet mill in which counter jet streams of the dispersion are collided with each other.

16. (New) The method according to claim 15 wherein the jet stream has a radius of 0.1mm, velocity of 600 m/sec and a flow rate of 15 liters/minute.

17. (New) Paper for inkjet printing having deposited thereon a coating resulting from the aqueous dispersion according to claim 1.

18. (New) The paper according to claim 17 having a color image printed thereon.

19. (New) The aqueous dispersion according to claim 1 wherein the ceramic is a member selected from the group consisting of silica, alumina and titania.

20. (New) The aqueous dispersion according to claim 19, wherein the ceramic is prepared by gas phase hydrolysis.